

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

Claims 1-50 (canceled).

Claim 51. (New): A multi-component system for making impressions which contains

(a) at least one compound having at least two alkenyl groups;

(b) at least one organohydrogenpolysiloxane;

(c) at least one hydrosilylation catalyst;

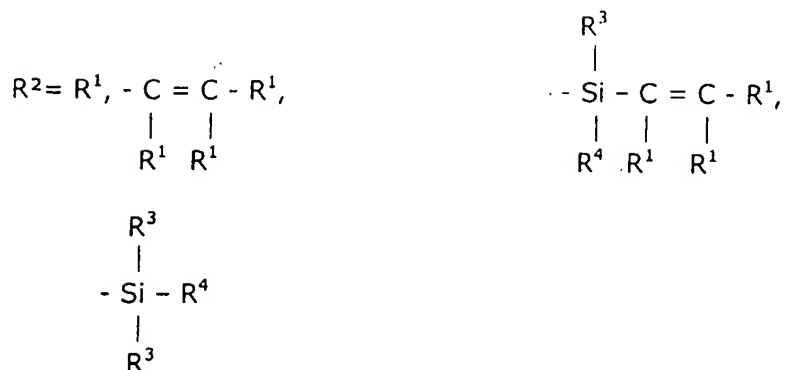
characterized by containing one or both of components (d<sub>1</sub>) and (d<sub>2</sub>), wherein

(d<sub>1</sub>) is at least one polymeric compound having at least one alkynyl group characterized  
in that the alkynyl compound (d<sub>1</sub>) is



wherein

R<sup>1</sup> = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl,  
-H, alkoxy, acyl and combinations thereof;



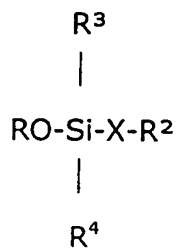
$R^3$  = halogen, aryl, alkylaryl, H, halogen-substituted alkyl and aryl groups, alkyl, or combinations thereof;

$R^4$  =  $R^3$ , or  $R^4$  is alkyl, methyl, or combinations thereof;

$X$  = polysiloxane, oligosilicic acid esters, polysilicic acid esters, polymeric hydrocarbons, or copolymers of the above mentioned compounds;

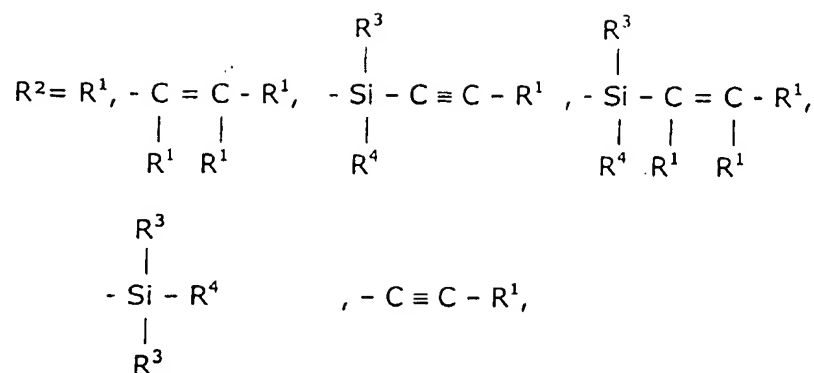
and

( $d_2$ ) is at least one compound having at least one Si-OR structural unit, wherein the Si-OR compound ( $d_2$ ) is



wherein

$R$  = H, alkyl, alkoxyalkyl or acyl;



$R^1$  = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl, -H, acyl, or combinations thereof;

$R^3$  = alkenyl, alkynyl, halogen, aryl, alkylaryl, H, halogen-substituted alkyl or aryl groups, alkyl, or combinations thereof;

$R^4$  =  $R^3$ , or  $R^4$  is different from  $R^3$ , wherein  $R^4$  is alkyl, methyl, alkynyl, ethynyl, or combinations thereof; and

$X$  = polysiloxane, oligosilicic acid esters, polysilicic acid esters, polyethers, polymeric hydrocarbons, polyesters and copolymers of the above mentioned compounds; and

when a compound ( $d_2$ ) having at least one Si-OR structural unit is contained,

(e) at least one condensation catalyst or condensation cross-linking agent.

Claim 52. (New): A multi-component system for making impressions according to claim 51 comprising at least two components A and B, characterized in that component A contains

- (a) the at least one compound having at least two alkenyl groups; and
- (b) the at least one organohydrogenpolysiloxane; and

- (d<sub>1</sub>) the at least one polymeric compound having at least one alkynyl group or
  - (d<sub>2</sub>) the at least one compound having at least one Si-OR structural unit, wherein R = H, alkyl, alkoxyalkyl or acyl;
- and component B contains
- (c) the at least one hydrosilylation catalyst; and
- when a compound (d<sub>2</sub>) having at least one Si-OR structural unit is contained, component A, component B, or each of components A and B contains
- (e) the at least one condensation catalyst or condensation cross-linking agent.

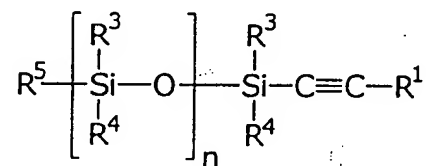
Claim 53. (New): A multi-component system for making impressions according to claim 51 comprising at least two components A and B, characterized in that component A contains

- (a) the at least one compound having at least two alkenyl groups; and
  - (b) the at least one organohydrogenpolysiloxane; and
- component B contains
- (c) the at least one hydrosilylation catalyst; and
  - (d<sub>2</sub>) the at least one compound having at least one Si-OR structural unit, wherein R = H, alkyl, alkoxyalkyl or acyl;
- and either component A or B contains
- (e) the at least one condensation catalyst or condensation cross-linking agent.

Claim 54. (New): A multi-component system for making impressions according to claim 52, characterized in that one or both of components A and B further contains

- (f) inhibitors of the condensation reactions of condensation catalysts or condensation cross-linking agents with compounds containing Si-OR structural units, wherein R = H, alkyl, alkoxyalkyl or acyl;
- (g) water-donating agents;
- (h) desiccants;
- (i) inert carrier materials;
- (j) compounds for reaction inhibition of the hydrosilylation reaction;
- (k) reinforcing fillers;
- (l) non-reinforcing fillers; and
- (m) auxiliaries.

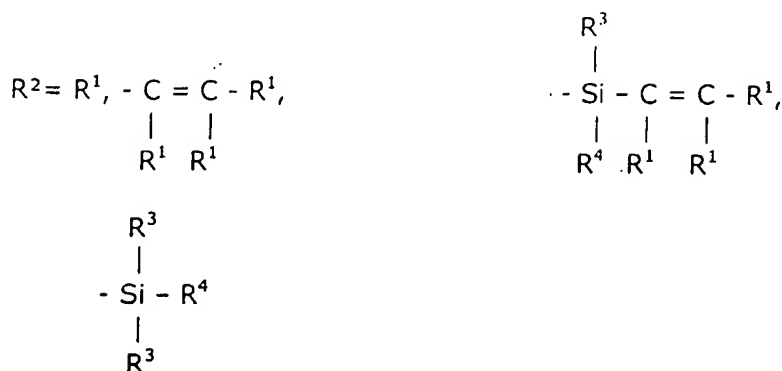
Claim 55. (New): A multi-component system for making impressions according to claim 51, characterized in that compound (d<sub>1</sub>) is



wherein n = 7 to 6000;

wherein

$R^1 =$  alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl, -H, alkoxy, acyl, or combinations thereof;

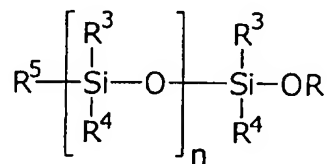


$R^3 =$  halogen, aryl, alkylaryl, H, halogen-substituted alkyl or aryl groups, alkyl or combinations thereof;

$R^4 = R^3$ , or  $R^4$  is different from  $R^3$ , wherein  $R^4$  is alkyl, methyl, or combinations thereof; and

$R^5 =$  H, alkyl, aryl, alkylaryl, halogen, halogen-substituted alkyl and aryl groups, -OR, aminoalkyl, epoxy, cyanoalkyl, cycloalkyl, methacrylate, acrylate, mercaptoalkyl, carboxylate, carboxyalkyl or succinic anhydride, and

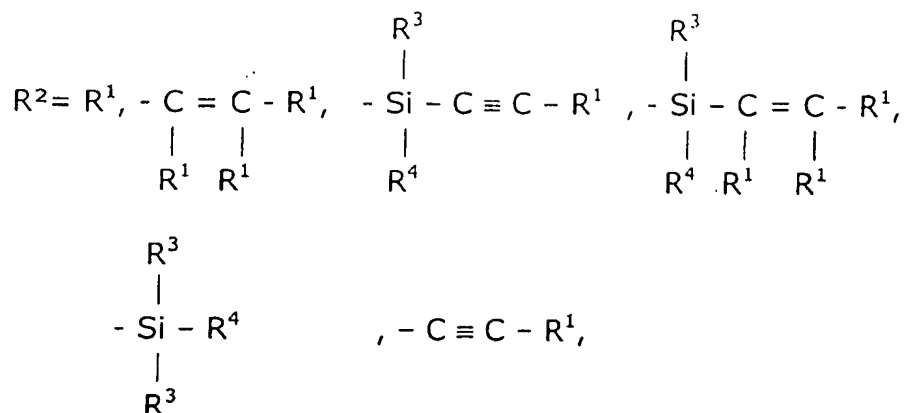
compound ( $d_2$ ) is



wherein n = 7 to 6000,

wherein

R = H, alkyl, alkoxyalkyl or acyl;



R<sup>1</sup> = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl, -H, acyl, or combinations thereof;

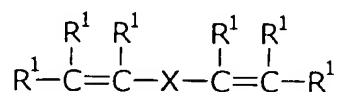
R<sup>3</sup> = alkenyl, alkynyl, halogen, aryl, alkylaryl, H, halogen-substituted alkyl or aryl groups, alkyl, or combinations thereof;

R<sup>4</sup> = R<sup>3</sup>, or R<sup>4</sup> is alkyl, methyl, alkynyl, ethynyl, or combinations thereof; and

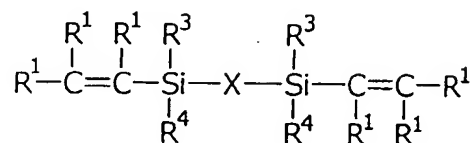
R<sup>5</sup> =  $\begin{array}{c} \text{R}^1 \text{R}^1 \\ | \quad | \\ \text{--- C} \equiv \text{C --- R}^1 \end{array}$ , H, alkyl, aryl, alkylaryl,  $\begin{array}{c} \text{R}^1 \text{R}^1 \\ | \quad | \\ \text{--- C = C --- R}^1 \end{array}$  halogen, halogen-substituted alkyl and aryl groups, aminoalkyl, epoxy, cyanoalkyl, cycloalkyl, alkylhydroxyl,

methacrylate, acrylate, mercaptoalkyl, carboxylate, carboxyalkyl or succinic anhydride.

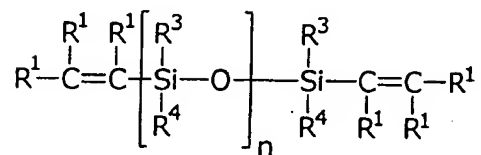
Claim 56. (New): A multi-component system for making impressions according to claim 51, characterized in that the alkenyl compound (a) is



or



or



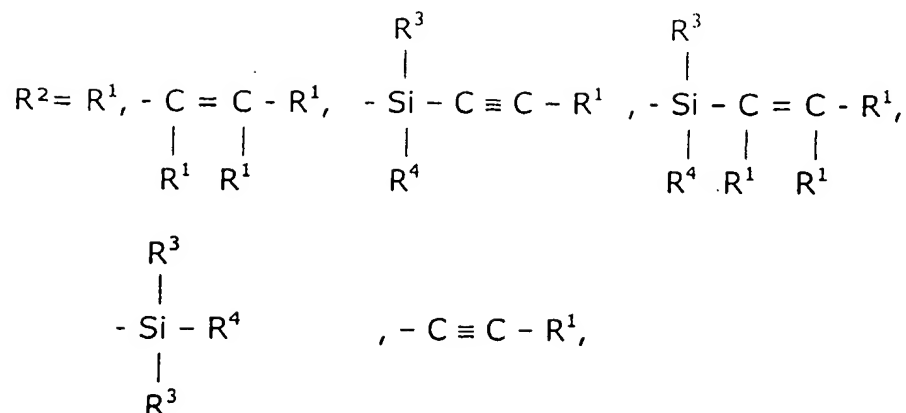
wherein n = 0 to 6000; or

a silane dendrimer having terminal alkenyl groups;

wherein

R<sup>1</sup> = alkyl, aryl, arylalkyl, halogen-substituted alkyl and aryl groups, cyanoalkyl, cycloalkyl, cycloalkenyl, -H, -OH, alkoxy, acyl and combinations thereof;





$R^3$  = alkenyl, alkynyl, halogen, aryl, alkylaryl, H, halogen-substituted alkyl and aryl groups, alkyl, alkoxy and hydroxy, and combinations thereof;

$R^4$  =  $R^3$ , or  $R^4$  is different from  $R^3$ , wherein  $R^4$  is, in particular, alkoxy, hydroxy, alkyl, methyl, alkynyl, ethynyl, or combinations thereof; and

X = polysiloxane, oligosilicic acid esters, polysilicic acid esters, polyethers, polymeric hydrocarbons, polyesters and copolymers of the above mentioned compounds.

Claim 57. (New): A multi-component system for making impressions according to claim 51, characterized in that the organohydrogenpolysiloxanes (b) are polyalkyl-, polyaryl- and polyalkylaryl-, polyhaloalkyl-, polyhaloaryl- or polyhaloalkylarylsiloxanes, which are present in the form of oligomers or polymers in a linear, branched or cyclic form or as a QM resin and have at least one Si-H bond.

Claim 58. (New): A multi-component system for making impressions according to claim 51, characterized in that the condensation catalysts and the condensation cross-linking agents (e) are aluminum alkoxides, antimony alkoxides, barium alkoxides, boron alkoxides, calcium alkoxides, cerium alkoxides, erbium alkoxides, silicon alkoxides, gallium alkoxides, germanium alkoxides, hafnium alkoxides, indium alkoxides, iron alkoxides, lanthanum alkoxides, magnesium alkoxides, neodymium alkoxides, samarium alkoxides, strontium alkoxides, tantalum alkoxides, titanium alkoxides, tin alkoxides, vanadium alkoxide oxides, yttrium alkoxides, zinc alkoxides, zirconium alkoxides, titanium or zirconium compounds, titanium, zirconium and hafnium alkoxides, and double metal alkoxides, chelates and oligo- and polycondensates of the above alkoxides, dialkyltin diacetate, tin(II) octoate, dialkyltin diacylate or dialkyltin oxide.

Claim 59. (New): A multi-component system for making impressions according to claim 51, characterized in that the hydrosilylation catalysts (c) are transition metals of the 8th auxiliary group, or platinum, palladium and rhodium or their salts, complexes and colloids, or platinum complexes and salts of hexachloroplatinic acid.

Claim 60. (New): A multi-component system for making impressions according to claim 54, characterized in that the inhibitors of the condensation reactions (f) are di-, tri-, oligo- and -polydialkylsiloxanes of general formula



wherein Z is OH or NR<sup>2</sup>, R represents the same or different optionally substituted hydrocarbyl residues, such as alkyl, alkenyl, aryl or alkynyl, and n = 0 or an integer of from 1 to 100; or

aliphatic diols, diamines, diphosphanes, polyamines, polyphosphanes or polyols, OH-, NH- or PR-functional polyethers or other chelating compounds.

Claim 61. (New): A multi-component system for making impressions according to claim 54, characterized in that the water-donating agents (g) are inorganic fillers containing superficially bound residual moisture or water bound in the crystal lattice, zeolites, purposefully moistened fillers or organic substances having a defined water content.

Claim 62. (New): A multi-component system for making impressions according to claim 54, characterized in that the desiccants (h) are zeolites, dried fillers or water-absorbing organic compounds, such as oxazolidines and alkali salts of poly(meth)acrylic acid (superabsorbers).

Claim 63. (New): A multi-component system for making impressions according to claim 54, characterized in that the inert carrier materials (i) are mineral oils, branched

hydrocarbons, vaseline, esters, phthalic acid esters, acetyltributyl citrate, polyalkylene oxides and polyesters and their copolymers.

Claim 64. (New): A multi-component system for making impressions according to claim 54, characterized in that the compounds for reaction inhibition of the hydrosilylation reaction (j) are short-chained organopolysiloxanes of general formula



wherein R represents the same or different optionally substituted hydrocarbyl residues, such as alkyl, alkenyl, aryl, alkynyl, alkenyl, and alkynyl-terminated siloxane residues; and

$n = 0$  or an integer of from 1 to 6; or

vinyl-containing cyclic siloxanes, such as tetravinyltetramethylcyclotetrasiloxane, or organic hydroxy compounds containing terminal double or triple bonds, diethyl maleate, alkylsilane, arylsilane, alkenylsilane, alkynylsilane, benzotriazole, compounds comprising a 1,4-ene-yne structural unit, compounds comprising a 1,3-ene-yne structural unit, such as 2-methyl-hexene-3-yne, ethyl-3-(trimethylsilyl)propynoate, bis(phenylethynyl)dimethylsilane, diynes, such as decadiyne or dodecadiyne, polyynes, dienes, polyenes, such as decatriene, (1,3-dioxane-2-ylethynyl)trialkylsilane, 1,4-divinyltetramethyldisilylethane, amines or phosphanes.

Claim 65. (New): A multi-component system for making impressions according to claim 54, characterized in that the reinforcing fillers (k) are highly dispersed active fillers, such as titanium dioxide, aluminum oxide, zinc oxide, or wet-precipitated or pyrogenic silicic acid, which may optionally be in a hydrophilic or hydrophobized form; or mineral fibrous fillers, such as wollastonite; or synthetic fibrous fillers, such as glass fibers, ceramic fibers or plastic fibers.

Claim 66. (New): A multi-component system for making impressions according to claim 54, characterized in that the non-reinforcing fillers (l) are metal oxides, metal oxide hydroxides, mixed oxides or mixed hydroxides, or silica, in the form of quartz and its crystalline modifications, fused silica, alumina, calcium oxide, aluminum hydroxide, calcium carbonate, kieselguhr, diatomaceous earth, talcum, ground glasses and plastic-based fillers, for example, polymethyl methacrylate, polycarbonate, polyvinyl chloride, silicone resin powder, or powder based on fluoro-organic compounds, the non-reinforcing fillers optionally being surface-treated (coated).

Claim 67. (New): A multi-component system for making impressions according to claim 54, characterized in that the auxiliaries (m) are dyes, surfactants, opaque substances, matting agents, such as titanium dioxide or zinc oxide, plasticizers, hydrogen adsorbers/absorbers, radiopaque substances or organosilicon MQ resins comprising

Si-vinyl, Si-OR, Si-ethynyl or SiH groups, or compounds or buffers and substances for adjusting the pH range.

Claim 68. (New): Mixtures obtainable by mixing the components A and B of claim 52.

Claim 69. (New): The mixtures according to claim 68, characterized in that, during and after the mixing of the components, the mixture, in a first step, undergoes a transition from a lighter-bodied mixer-suitable initial consistency to a heavier-bodied plastic phase in which the material builds up a high force pressure in the making of dental impressions in the impression tray, and in a second step, cures to its final elastic form.

Claim 70. (New): The mixtures according to claim 68, characterized in that said mixtures have been cured to completion.

Claim 71. (New): The mixtures according to claim 68, characterized in that the mixtures have a mixer-suitable consistency, in a first state at the beginning of mixing, of  $> 26$  mm (according to ISO 4823), whereupon the mixtures undergo transition to a heavier-bodied second state with a consistency of  $< 35$  mm (according to ISO 4823), caused by condensation reactions of SiOR groups or by hydrosilylation reactions of alkynyl groups with SiH groups, this latter consistency being maintained over a period of at least 15 s,

and thereafter, the mixtures undergo transition to a third solid, elastic state following curing through a hydrosilylation reaction of alkenyl groups with SiH groups.

Claim 72. (New): A method for the preparation of impressions from objects from which impressions are to be made using a multicomponent system according to claim 51, wherein the impression material is prepared by mixing the components, wherein the impression material is first dispensable in a first state from a container, whereupon it undergoes transition to a second state in which the viscosity of the impression material is increased, whereupon an impression is prepared from an object from which an impression is to be made, whereupon the impression material undergoes transition to a third, solid state in which an impression result is recorded, the second state being achieved by graded hydrosilylation reactions between alkynyl and alkenyl structural units with compounds containing Si-H groups or by graded addition reactions (between alkenyl and SiH groups) and condensation reactions (of SiOR groups with condensation catalysts).

Claim 73. (New): The method according to claim 72, characterized in that the consistency of the impression material in a first state at the beginning of mixing is  $> 26$  mm (according to ISO 4823), and the impression material is mixer-suitable in this first state, that the consistency of the impression material in the second state is  $< 35$  mm (according to ISO

4823), wherein the impression material is heavier-bodied than it is in the first state, and that the impression material in this second state is retained to the end of the total pot life, i.e., for at least 15 s.

Claim 74. (New): The method according to claim 72, characterized in that the mixtures have a mixer-suitable consistency, in a first state at the beginning of mixing, of  $> 26$  mm (according to ISO 4823), whereupon the mixtures undergo transition to a heavier-bodied second state with a consistency of  $< 35$  mm (according to ISO 4823), by a hydrosilylation reaction of alkenyl groups with SiH groups, this latter consistency being maintained over a period of at least 15 s, and thereafter, the mixtures undergo transition to a third solid, elastic state through condensation reactions of SiOR groups or through hydrosilylation reactions of alkynyl groups with SiH groups.